STUDIES IN AUSTRALIAN GRASSES: 4*. TAXONOMIC AND NOMENCLATURAL STUDIES IN AUSTRALIAN ANDROPOGONEAE

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Summary

Eight new species, namely *Cymbopogon dependens, Eulalia annua, Ischaemum albovillosum, I. tropicum, Mnesithea pilosa, Schizachyrium mitchelliana, Thaumastochloa heteromorpha* and *Vetiveria rigida* are diagnosed and described. New combinations are *Bothriochloa bladhii* subsp. *glabra* based on *Andropogon glaber* Roxb., *Dichanthium sericeum* subsp. *humilius* based on *Dichanthium humilius* J. Black, *Dichanthium sericeum* subsp. *polystachyum* based on *Andropogon sericeus* var. *polystachyus* Benth. and *Hyparrhenia rufa* subsp. *altissima* based on *Hyparrhenia altissima* Stapf. Synonyms created for the first time are *Andropogon affinis* R. Br., *A. chrysatherus* F. Muell., *A. sericeus* var. *mollis* Bailey (and names based on these basionyms) under *Dichanthium sericeum* (R. Br.) A. Camus, *Andropogon sericeus* var. *geniculatus* Bailey and *A. sericeus* forma *micranthus* Domin under *Dichanthium sericeum* subsp. *humilius* and *Hyparrhenia quarrei* Robyns under *H. hirta* (L.) Stapf. *Dimeria chloridiformis* (Gaudich.) Schumann & Lauterb. is recognized as the correct name for *D. ciliata* Merr., *Eulalia aurea* (Bory) Kunth for *E. fulva* (R. Br.) Kunth and *E. geniculata* Stapf, *Mnesithea rottboellioides* (R. Br.) Koning & Sosef for *Coelorachis rottboellioides* (R. Br.) A. Camus, *Mnesithea granularis* (L.) Koning & Sosef for *Hackelochloa granularis* (L.) Kuntze, *Mnesithea annua* (Lazarides) Koning & Sosef for *Heteropholis annua* Lazarides, *Mnesithea formosa* (R. Br.) Koning & Sosef for *Rottboellia formosa* R. Br. and *Polytrias diversiflora* (Steudel) Nash for *P. amaura* (Buse) Kuntze.

As a result of research undertaken for the preparation of the account of Andropogoneae for the Flora of Australia, a number of new species require formal description and a few nomenclatural changes are necessary. In the following account they are treated alphabetically by genus. The descriptions of the new species are extracted from the database of the Andropogoneae compiled for the Flora using the DELTA system (Dallwitz & Paine 1986).

New Taxa and New Combinations

BOTHRIOCHLOA Kuntze

Bothriochloa bladhii subsp. **glabra** (Roxb.) B. Simon, **comb. nov.**

Andropogon glaber Roxb., Fl. ind. 1: 271 (1820); *Amphilophis glabra* (Roxb.) Stapf in Prain, Fl. trop. Afr. 9: 174 (1917); *Bothriochloa glabra* (Roxb.) A. Camus, Ann. Soc. Linn. Lyon, n.s. 6: 164 (1931). **Type:** Bengal, India, *W. Roxburgh* (holo: BM!(photo BRI,K); iso: K!(photo BRI)).

Specimen examined: Queensland. MORETON DISTRICT: Wendy Allison Park, Brisbane, Apr 1977, *Bisset* B184 & B185 (BRI).

Work on the genetic barriers of *Bothriochloa bladhii* (under *B. intermedia*) (de Wet & Harlan 1966; Faruqi 1969) has established that this species is capable of crossing with other species of *Bothriochloa* and species of the related genera *Dichanthium* and *Capillipedium*. This promiscuous character of *B. bladhii* has led some workers to use the biological species concept to unite the three genera taxonomically (de Wet & Harlan 1966). However I have previously given reasons why I do not consider the wisdom of such a move with respect to *Bothriochloa* and *Dichanthium* (Simon 1982), namely the morphological differences of spikelet shape, the presence or absence of a translucent mid-line in the rachis internodes and pedicels and differences in phytogeography. The species *Bothriochloa glabra* has been sunk under *B. bladhii* (Faruqi 1969; Clayton & Renvoize 1982) following the trend of regarding *B. bladhii* as a very variable species. Another point of view is that *B. glabra* is a hybrid between *B. bladhii* and *Capillipedium parviflorum* and furthermore that *C. spicigerum* is the product of a back-cross between *B. glabra* and *C. parviflorum* (de Wet 1987). In view of the fact that *B. glabra* does not occur naturally in Australia I feel these assumptions cannot be made. However I also

* continued from Austrobaileya 2(3): 281–283 (1986)

feel that information is lost by placing *B. glabra* into synonymy with *B. bladhii* as the introduced *B. glabra* has slightly smaller spikelets (3–3.5 mm long) than the native *B. bladhii* (3.5–4 mm long) and always has pitted spikelets whereas this character is a fairly rare feature in *B. bladhii*. For this reason I propose the rank of subspecies for *B. glabra*. Although this entity has been introduced into cultivation a number of times there appears to be only one record of it having become naturalised. This was in a Brisbane suburban park near an old plant introduction field station.

CYMBOPOGON Sprengel

Cymbopogon dependens B. Simon, **species nova** affinis *C. ambiguo* A. Camus et *C. procero* (R. Br.) Domin sed foliorum laminis ad 3 mm latis, filiformibus vel perangustis, culmis subtilibus et dependentibus differt. **Typus:** Katherine Gorge, Northern Territory, 8 March 1964, *M. Lazarides* 7036 (holo: BRI!(2 sheets BRI 139135 & BRI 139136); iso: CANB!,DNA!,K!(photo BRI),MEL!). **Fig. 1.**

Culms 90–120 cm tall, 3–5-noded below the inflorescence, delicate and drooping, internodes smooth, glabrous; nodes glabrous. Leaf sheaths longer than the internodes, smooth, glabrous, not rolling up at maturity. Ligules to 1 mm long. Collar glabrous. Leaf blades gradually narrowed to the base, flat, smooth above, glabrous, 15–30 cm long, 0.5–2.5 mm wide. Inflorescence occupying more than 1/5 the culm length, 17–25 cm long, 3–5 cm wide, ± interrupted, 3–5-noded, branched to the 3rd degree; inflorescence branches mostly exceeding the internodes. Spatheoles very narrowly elliptic, glabrous, smooth, 2–4 mm long, 1.5–2 mm wide. Peduncle hairy towards the tip, 8–11 mm long, 1/3–1/2 as long as the spatheole. Racemes distinctly hairy, with hairs 4–7 mm long, not reflexed, 20–25 mm long, 3–5-jointed. Joints and pedicels linear, concave ventrally, convex on the back, 2–2.5 mm long, ciliate on the margins and villous on the back, nearly equal. Sessile spikelet 4.5–5 mm long, 5–6 times as long as wide, very narrowly ovate-elliptic, awned; longer callus hairs to 1.2 mm long. Lower glume flat or concave on back, *ca* 1 mm long, 2-keeled throughout, with 0–4 intracarinal nerves, flat to shallowly concave. Upper glume 3-nerved. Lower lemma oblong, a little shorter than the glumes. Upper lemma 3/4 as long as the lower lemma, lobed to 1/2 the length. Awn 17–20 mm long. Column 6–8 mm long. Pedicelled spikelet neuter, narrow linear to narrowly ovate, *ca* 2 mm long (rudimentary).

Specimens examined: Western Australia. GARDNER DISTRICT: Hidden Valley, Kununurra, *Pullen* 10.841 (CANB,NSW,PERTH,WIR). **Northern Territory.** DARWIN AND GULF: Woolaning, *Dunlop* 5925 & *Craven* (CANB,DNA,K,L); 19 mi NE of Katherine, Feb 1965, *Wilson* 333 (BRI,CANB,DNA,K,L,NSW,US); 4 mi W of Pine Creek, *Lazarides* 237 & *Adams* (CANB,NT); Katherine Gorge, Mar 1980, *Simon* 3667, *Cousins* & *Grosvenor* (BRI). CENTRAL SOUTH: 26 mi NE of Docker River Settlement, *Latz* 872 (CANB,DNA).

This species is distinguished from the related *C. ambiguus* and *C. procerus* by its small stature and decumbent or weakly erect habit. It inhabits sandstone cliffs in various isolated regions of the Northern Territory and Western Australia. The above three species are closely related, differing only in size and direction of culm growth. Some plants of *C. procerus* are extremely robust, growing to heights of up to 2.5 m with leaf blades to 15 mm wide whereas plants of *C. dependens* may have culms as short as 40 cm and leaf blades never more than 3 mm wide. The quantitative differences may be a reflection of the ecology of the habitats where the forms occur. *C. procerus* grows only in the monsoon tropical areas of northern Australia; *C. ambiguus* is found in more arid regions of the Australian subtropics, although collections have also been made in the tropics; *C. dependens* has been collected from both tropical and subtropical regions. The differences in spikelet morphology between *C. ambiguus* and *C. procerus* given by Blake (1974) were not reflected in specimens examined when the Flora of Australia account was being prepared. It is also interesting that Blake regarded the fragile specimens represented by *Lazarides* 7036 and *Wilson* 333 (placed here with *C. dependens*) as a diminutive form of the robust species *C. procerus* and not of the shorter species *C. ambiguus*. The close relationship between *C. ambiguus* and *C. procerus* is reflected by the fact that the name *C. exaltatus*, a taxonomic synonym of *C. procerus*, has been misapplied to *C. ambiguus* in the past. In order to find the true relationship between these entities experimentation is required. In the meantime I have decided to recognize them at species rank.

In general the taxonomic situation in Australian species of *Cymbopogon* is not as clear as that presented by recent workers (Blake 1974; Soenarko 1977). There appear to be a number of situations of blurring of species boundaries and the existence of hybrids

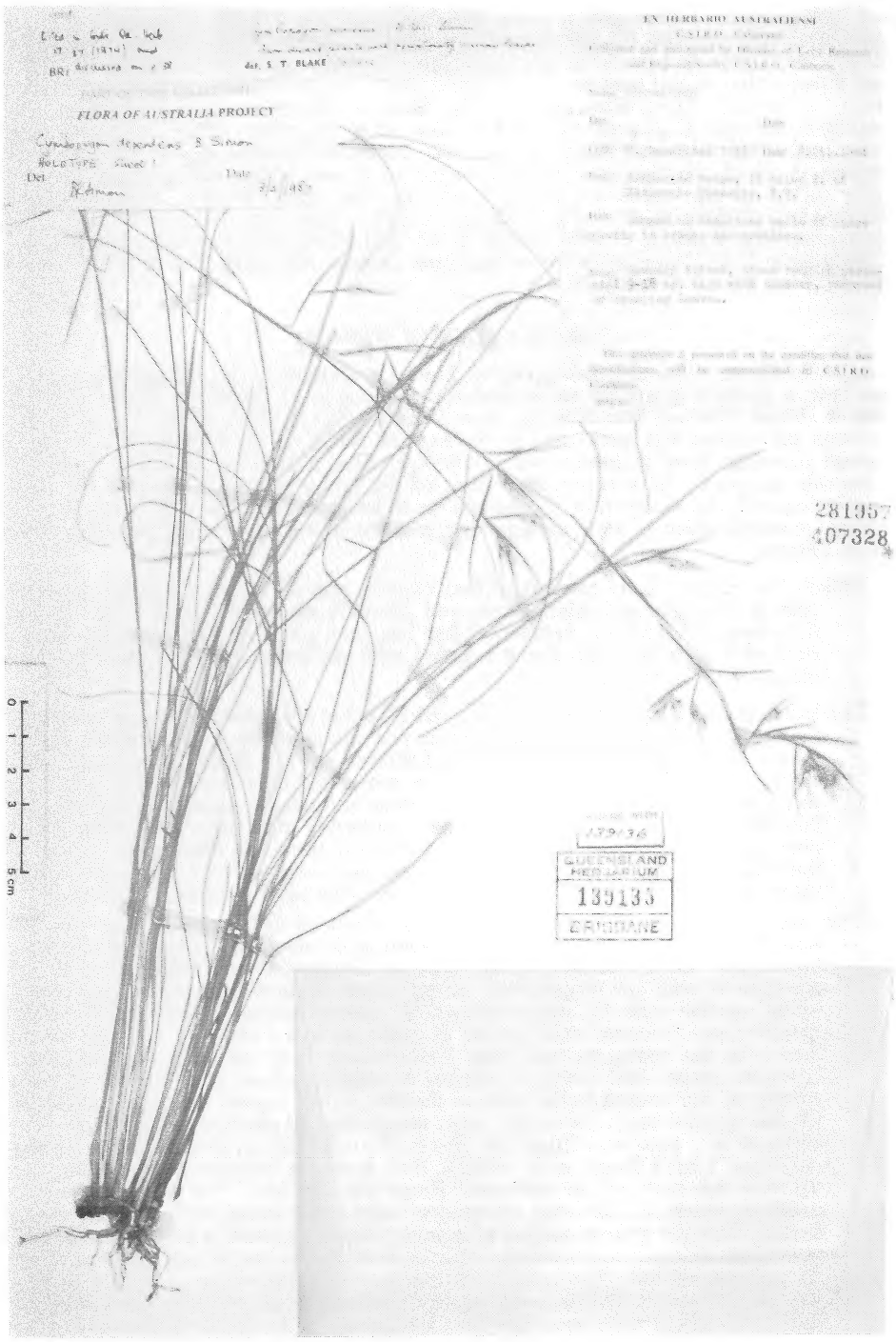

Fig. 1. One sheet of holotype of *Cymbopogon dependens*.

has been postulated. Examples of these have been cited e.g. hybrids between *C. refractus* and three other species (*C. obtectus*, *C. bombycinus* and *C. queenslandicus)* cited by Blake (1974), hybrids between *C. ambiguus* and *C. bombycinus* cited by Soenarko (1977) and a postulated hybrid between *C. ambiguus* and *C. queenslandicus* (*S.T. Blake* 8353A) from Castle Hill, Townsville, annotated by Blake in the Queensland Herbarium. The boundary between *C. bombycinus* and *C. obtectus* is not clearly demarcated and there are populations that are intermediate in the interzone between the wetter and drier regions in which the two species occur. Some specimens which fall into this category have curled-up old leaf-blades of *C. bombycinus* but spikelets of *C. obtectus* (*Lloyd* NSW183537 (NSW) from Coonabarabran, N.S.W., *Crisp* 1542 (AD,CBG,NSW,L,US) from near West Wyalong, N.S.W., *Blake* 10742 (BRI,NSW) from Noondoo, Queensland, *Chippendale* 1738 (DNA,NSW) from Hamilton Downs, N.T. and *T. & J. Whaite* 4159 (NSW) from near Geraldton, W.A.).

DICHANTHIUM Willimet

The *Dichanthium sericeum* complex, known commonly as Queensland blue grasses, has been a problem group for some time with regards to its taxonomy (Blake 1969; de Wet & Harlan 1962; de Wet & Richardson 1963; de Wet & Singh 1964). The similarity between the entities was recognized by de Wet and Singh (1964) who stated that "these species appear to form a closely related complex characterized by fasciculate, sessile or subsessile racemes". In a taxonomic study of the group Blake (1969) went to some lengths to justify the recognition of three species *D. sericeum*, *D. affine* and *D. tenuiculum*. Recent re-examination of type material has resulted in my perceiving the situation to be as follows:

1. Blake's "D. affine" really consists of two entities, one of which is a delicate annual species found in arid inland areas and formerly recognized as *D. humilius* and the other, to which the name *D. affine* has been given, is really a more slender state of *D. sericeum* and found together with the latter species in the black soil plains of the subtropics.

2. The lectotypes of *Dichanthium sericeum* and *D. affine* are from a mixed gathering on the Paterson River, New South Wales and mounted on a single sheet at BM (Blake 1969). There is a discernible difference on the sheet between the inflorescence of *D. affine* (labelled "A" on the sheet) and the other six of *D. sericeum*, the former having shorter racemes and awns and smaller spikelets. However the fact that they were collected in the same gathering may either be a reflection of phenotypic plasticity or the result of genetic variation of a Mendelian nature. At this stage therefore I am not giving taxonomic recognition to this more slender form, but including it within the variability of *D. sericeum* subsp. *sericeum*.

3. The tropical entity with many racemes was known as *Dichanthium superciliatum* until Blake (1969) made the new combination *D. tenuiculum* based on an earlier basionym. When I examined the type of *Andropogon tenuiculus* Steudel the presence of only 2–4 racemes led me to believe Blake was wrong in placing this entity together with the many-racemed *D. superciliatum*. At the time I thought the specimen belonged with typical *D. sericeum* and I placed a det. slip on the type with this name (at that stage I was calling it *D. sericeum* var. *sericeum*). However recent field work in tropical Australia and an examination of more specimens has revealed that raceme number is not a good diagnostic character for this tropical entity, nor is the other morphological character of the hairs being arranged in a subapical fringe (de Wet & Harlan 1968) as both taxa display this character. I have found more reliable distinguishing characters to be habit and the way the hairs of the subapical fringe are arranged. The tropical entity is usually a robust annual with the spikelet hairs being arranged in a distinct erect fashion from the spikelet surface whereas typical *D. sericeum* is always a perennial, sometimes fairly delicate, and the spikelet hairs are not as distinctively erect from the spikelet surface. The type of *Andropogon tenuiculus* has no base and so it was not possible to tell its habit; the erect hairs and the fact that it was collected from the tropical Philippines however, has persuaded me to follow Blake's original placing of this entity. A physiological difference between the two has been noted (Tothill 1977, 1981) in that the tropical entity flowers under short-day conditions late in the season whereas *D. sericeum sens. strict.* is day-neutral. Tothill postulates

speciation of the latter from the former as an evolutionary development away from short-day control of flowering in a similar manner to that in some other members of the Andropogoneae in their southern migration.

4. Although the taxa of the *D. sericeum* complex are fairly well genetically isolated (de Wet & Harlan 1968), there exist in herbarium collections specimens of an intermediate nature which are difficult to place with certainty into one taxon or another. In view of this dilemma it seems to me that the most satisfactory nomenclatural solution at this stage is to treat the whole complex as one species, with three subspecies in the manner outlined formally. At an earlier stage in my studies I selected the varietal rank to separate "D. affine" (in the Blake sense) from *D. sericeum*, whereas the decision to use the subspecies rank for *D. tenuiculum* was taken at the outset.

With the establishment of *D. affine* as a synonym of *D. sericeum* subsp. *sericeum*, the full synonymy for *D. sericeum* becomes:

Dichanthium sericeum (R. Br.) A. Camus, Bull. Mus. Hist. Nat. (Paris) 27: 549 (1921); *Andropogon sericeus* R. Br., Prodr. 201 (1810). **Type**: Paterson R., N.S.W., *R. Brown* [6178, excl. part A] (lecto: BM!(photo BRI,K); isolecto: E!(photo BRI,K),K!(photo & fragment BRI), *fide* S.T. Blake, Proc. Roy. Soc. Queensland 80: 67 (1969)).

Dichanthium sericeum subsp. **sericeum**

Andropogon affinis R. Br., Prodr. 201 (1810); *Sorghum affine* (R. Br.) Kuntze, Revis. gen. pl. 2: 791 (1891); *Dichanthium affine* (R. Br.) Camus, Bull. Mus. Hist. Nat. (Paris) 27: 549 (1921). **Type**: Paterson R., N.S.W., *R. Brown* [6178, part A] (lecto: BM!(photo BRI,K); isolecto: E!(fragment BRI, photo BRI,K),K!(photo BRI), *fide* S.T. Blake, *loc. cit.*).

Andropogon chrysatherus F. Muell., Linnaea 25: 443 (1853). **Type**: Crystal Brook, S.A., *F. Mueller* s.n. (syn: MEL!(fragment & photo BRI),P!(fragment BRI, photo BRI,K),S!(fragment BRI, photo BRI,K),W!(photo BRI); towards Rocky Creek, S.A., *F. Mueller* s.n. (syn: MEL!(photo BRI),P!,S!).

Andropogon acutiusculus Hackel in DC., Monogr. phan. 6: 575 (1889); *Dichanthium acutiusculum* (Hackel) A. Camus, Bull. Mus. Hist. Nat. (Paris) 27: 549 (1921). **Type**: Port I Keppel Bay [Between Curtis Island and Facing Island, Qld], *R. Brown* [6178 in part] (holo: W, *n.v.*(photo BRI); iso: BM!(photo BRI,K),BRI!,E!,K! (photo BRI),MEL!,P!(photo BRI)).

Andropogon sericeus var. *mollis* Bailey, Queensland Agric. J. 30: 316 (1913); *Dichanthium sericeum* var. *molle* (Bailey) de Wet & Harlan, Phyton 18: 13 (1962). **Type**: Gindie, *E.W. Bick* 12 (holo: BRI!; iso: K!(photo BRI),MEL!).

Andropogon sericeus forma *glaberrimus* Domin, Biblioth. Bot. 85: 267 (1915). **Type**: Barcaldine, Qld, March 1910, *K. Domin* s.n. (syn: *n.v.*), Mareeba, Qld, *K. Domin* s.n. (syn: K!(photo BRI)).

Andropogon sericeus forma *puberulus* Domin, Biblioth. Bot. 85: 267 (1915). **Type**: Chillagoe, Qld, February 1910, *K. Domin* s.n. (?holo: K!(photo BRI)).

Andropogon sericeus forma *ciliatus* Domin, Biblioth. Bot. 85: 267 (1915). **Type**: Jericho, Qld, February 1910, *K. Domin* s.n. (?holo: K!(photo BRI)).

Dichanthium caricosum subvar. *racemosum* Roberty, Boissiera 9: 165 (1960). **Type**: Jericho, Qld, *R. Simmons* 69 (holo: G!(fragment BRI, photo BRI,K); iso: NSW!).

[*Andropogon annulatus* auct. non Forssk.: F. Muell., Fragm. 8: 123 (1873)].

Dichanthium sericeum subsp. **humilius** (J. Black) B. Simon, **comb. nov.**

Dichanthium humilius J. Black, Trans. & Proc. Roy. Soc. South Australia 60: 164 (1936); *Andropogon annulatus* var. *?humilis* Benth., Fl. austral. 7: 531 (1878). **Type**: Charlotte Waters, N.T., March 1875, *E. Giles* s.n. (holo: MEL!(photo BRI)).

Andropogon sericeus var. *geniculatus* Bailey, Queensland Agric. J. 26: 128 (1911). **synon. nov**. **Type**: Winton, Qld, February 1914, *T.G. Wright* s.n. (holo: BRI!; iso: CANB!,K!(photo BRI),MEL!).

Andropogon sericeus forma *micranthus* Domin, Biblioth. Bot. 85: 267 (1915) **synon. nov.** **Type**: Between Winton and Barcaldine, March 1910, *K. Domin* s.n. (holo: PR *fide* Blake (1969), *n.v.*).

Specimens examined: Western Australia. COOLGARDIE DISTRICT: 40 km E of Mt Vetters Station, Kalgoorlie, Apr 1975, *Mitchell* s.n. (NSW,PERTH). CARNARVON DISTRICT: 94 km N of Minilya, Mar 1980, *Simon* 3783 & *Stretch* (BRI). AUSTIN DISTRICT: Wiluna, July 1937, *Melville* s.n. (PERTH). HALL DISTRICT: Fox River Station, May 1981, *Glover* FR 7 (BRI). **Northern Territory.** BARKLAY TABLELAND: Rockhampton Downs, Apr 1968, *Nicholls* 790 (BRI,DNA). CENTRAL NORTH: Claraville Homestead, Jan 1971, *Latz* 1152 (BRI,DNA). CENTRAL SOUTH: Andado Station, Apr 1977, *Latz* 6775 (BRI,DNA). **South Australia.** LAKE EYRE: Wangianna, Sep 1941, *Cleland* s.n. (BRI). FLINDERS RANGES: 16 km NNE of Wooltana, Apr 1966, *Eichler* 18637 (AD,BRI). **Queensland.** BURKE DISTRICT: 40 mi SSW of Richmond, Jun 1954, *Lazarides* 4458 (BRI,CANB). GREGORY NORTH DISTRICT: Currawilla, Jun 1949, *Everist* 3910 (BRI,K). **New South Wales.** NORTH WESTERN PLAINS: Near Fort Bourke, Apr 1976, *Simon* 2959 (BRI,NSW,K).

Dichanthium sericeum subsp. **polystachyum** (Benth.) B. Simon, **comb. nov.**

Andropogon sericeus var. *polystachyus* Benth., Fl. austral. 7: 530 (1878). **Type**: Burdekin River, Qld, *E. Bowman* s.n. (lecto (here designated): K!(photo BRI); isolecto: MEL!(photo BRI)).

Andropogon tenuiculus Steudel, Syn. Pl. Glum. 1: 371 (1854); *Dichanthium tenuiculum* (Steudel) S.T. Blake, Proc. Roy. Soc. Queensland 80: 69 (1969). **Type**: Luzón, Philippines, *H. Cuming* 1398 (holo: P!(photo BRI); iso FI, *n.v.*(fragment & photo BRI), W, *n.v.*(photo BRI)).

Andropogon superciliatus Hackel, Bot. Jahrb. Syst. 6: 239 (1885); *Sorghum superciliatum* (Hackel) Kuntze, Revis. gen. pl. 792 (1891); *Dichanthium superciliatum* (Hackel) A. Camus, Bull. Mus. Hist. Nat. (Paris) 27: 550 (1921). **Type**: Near Atapupu, Timor, *Naumann* s.n. (holo: B, *fide* Blake (1969) *n.v.*).

Specimens examined: Papua New Guinea. PORT MORESBY DISTRICT: Port Moresby, 1893, *E. Cowley* 16 (BRI). **Australia. Western Australia**. FITZGERALD DISTRICT: Kimberley 88 Outcamp, road to Mindewinde, Apr 1988, *Simon* 4048 & *Sands* (BRI,CANB,DNA,K,MEL,NSW,PERTH). GARDNER DISTRICT: 100 km SE of Kununurra, Mar 1979, *Petheram* 322 (BRI,K,PERTH). HALL DISTRICT: Fox River Station, Mar 1981, *Glover* FR 1 (BRI). **Northern Territory.** VICTORIA RIVER: Kidman Springs, Apr 1980, *Andrew* 616 (BRI,CANB,DNA). DARWIN AND GULF: Austral Downs, May 1947, *Blake* 17972 (AD,BRI,CANB,DNA,K,MEL,NSW,PERTH). BARKLY TABLELAND: Newcastle Waters, May 1975, *Latz* 5989 (BRI,DNA). CENTRAL NORTH: 16 Mile Creek, N of Alice Springs, Feb 1971, *Nelson* 2085 (BRI,DNA). **Queensland.** COOK DISTRICT: 11 km E of Meripah, May 1987, *Clarkson* 7158 & *Simon* (BRI,MBA,NSW). BURKE DISTRICT: Hughenden, Jun 1934, *Blake* 6248 (BRI,CANB,NSW,PERTH). GREGORY NORTH DISTRICT: Tranby, May 1936, *Blake* 11429 (BRI). NORTH KENNEDY DISTRICT: Antil Creek, Mar 1973, *Henderson* 1422 (BRI). SOUTH KENNEDY DISTRICT: Mackay, Nov 1963, *Glover* s.n. (BRI). MITCHELL DISTRICT: Cameron Downs, Mar 1943, *Pearson* 163 (BRI).

EULALIA Kunth

Eulalia annua B. Simon, **species nova** affinis *E. aureae* (Bory) Kunth sed habitu annuo, culmis caespitosis infirme interdum decumbentibus differt. **Typus:** 7 km N of North Kennedy R. on Peninsular Development Road, Cape York Peninsula, Queensland, 28 April 1983, *J.R. Clarkson* 4802 (holo: BRI!; iso: CANB!, K!,MBA!,NSW!,QRS!). **Fig. 2.**

Habit annual. Culms 10–45 cm tall, decumbent to weakly tufted, sometimes decumbent, glabrous at base, simple; nodes glabrous. Ligule a hair-fringed membrane, *ca* 0.1 mm long. Blades 3–7 cm long, 1–3 mm wide. Inflorescence subdigitate, or digitate. Peduncles hairy. Racemes 2 or 3, with dark brown hairs, 7–20-jointed, 1.5–4 cm. Joints and pedicels the same length, densely fulvous, 1.8 mm long. Spikelet dorsally compressed, lanceolate-linear; 2.5–3 mm long, *ca* 0.6 mm wide; callus *ca* 0.3 mm long. Lower glume very narrowly truncate, lanceolate-linear, rounded on back, membranous to thinly chartaceous, with long fulvous hairs on lower half on back (larger towards tip), reddish brown, 5-nerved (very faint). Upper glume 3-nerved (faint), as long as lower glume, linear-lanceolate, thinly fulvous on back. Lower lemma absent. Upper lemma stipe-like, *ca* 0.5 mm long. Awn 18–20 mm long.

Specimens examined: Northern Territory. DARWIN AND GULF: Munmarlary, May 1978, *Dunlop* 4805 (BRI,CANB,DNA,K,NT); Munmarlary, Apr 1973, *Latz* 3870 (BRI,CANB,DNA,L); Kakadu National Park, *Lazarides* 8842 (CANB,MEL,NSW); Hempe Bay, Groote Eylandt, May 1948, *Specht* 384 (BRI,MEL,NSW,PERTH); Melville Island, Apr 1986, *Johnson* 4218 (BRI); Darwin, *Allen* 183 and 466 (BRI); Darwin, 1881, *Burkitt* s.n. (BRI,MEL). **Queensland.** COOK DISTRICT: Merepah, May 1987, *Clarkson* 7154 & *Simon* (BRI,DNA,K,L, MBA,NSW,PERTH,QRS); Lakefield National Park, May 1987, *Clarkson* 6964 & *Simon* (BRI,K,L,MBA,NSW,QRS); 30 km N of Mareeba, May 1975, *Simon* 2652A, *Clarkson* & *Staples* (BRI,CANB,K); Bamaga, May 1981, *Alcorn* 8172 (BRI); ditto, 8172 (BRI); York Downs, May 1981, *Morton* 1209 (BRI,MEL). BURKE DISTRICT: Normanton, *Gulliver* [BRI280496] (BRI,MEL).

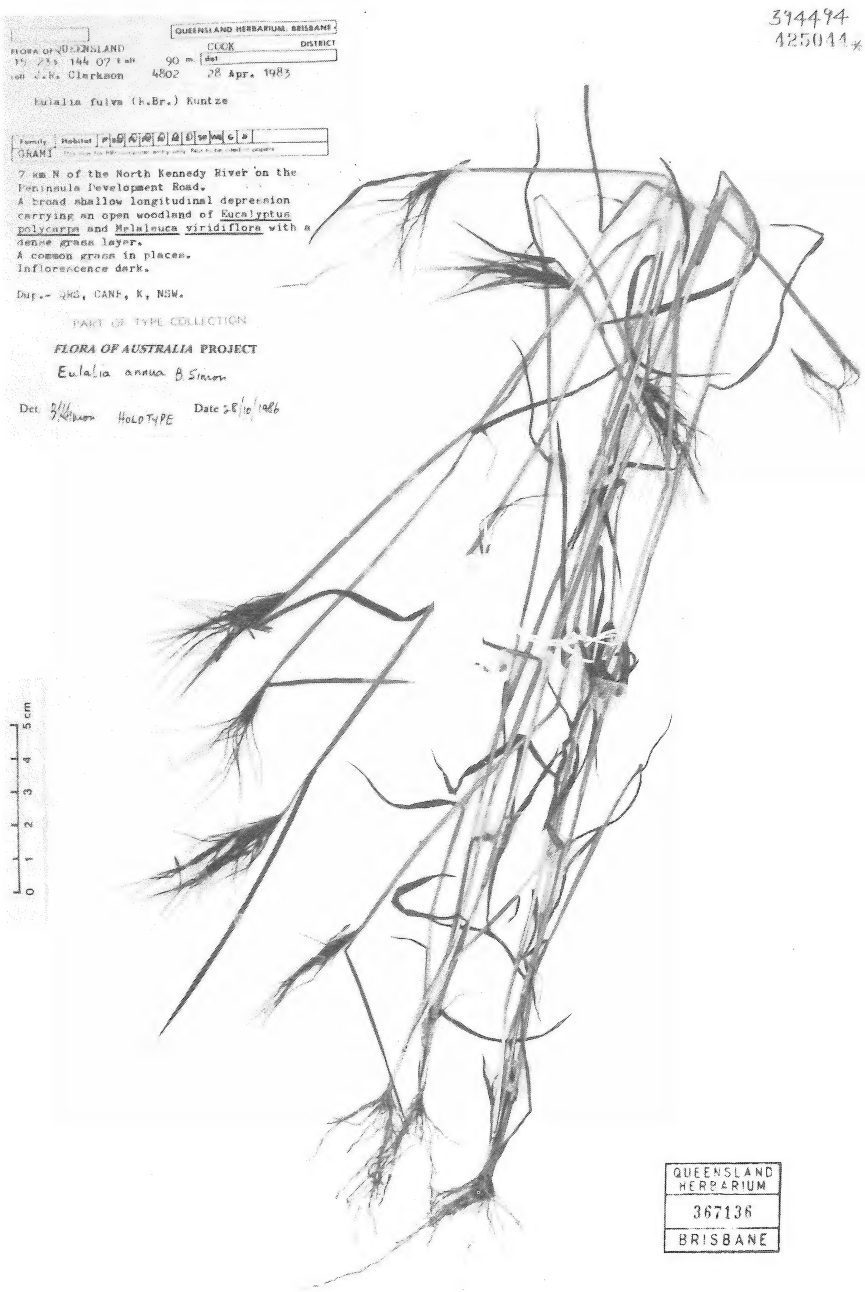

Fig. 2. Holotype of *Eulalia annua*.

This annual grass has been in herbarium collections for some time, having been wrongly identified as *Eulalia leschenaultiana* (Decne) Ohwi, applicable to a decumbent Asian perennial species and *Pseudopogonatherum collinum* (Balansa) A. Camus, a synonym of *P. contortum* (Brongn.) A. Camus. The genera *Eulalia* and *Pseudopogonatherum* have recently been combined (Clayton & Renvoize 1986) on the basis that the character of rachis toughness, implied by them to have been used as the diagnostic character to keep the genera apart, breaks down. However at least three other characters known to separate *Pseudopogonatherum* from *Eulalia* are the distinctly awned upper glume (awnless in *Eulalia*), both spikelets of each pair being pedicelled (one sessile in *Eulalia*) and the convex lower glume (concave in *Eulalia*). The new species is typically *Eulalia* in all these characters.

HYPARRHENIA Andersson ex Fourn.

Hyparrhenia rufa subsp. **altissima** (Stapf) B. Simon, **comb. nov.**

Andropogon altissimus Hochst. ex A. Braun, Flora 24: 277 (1841), non Raspail (1825), nec Colla (1836); *Hyparrhenia altissima* Stapf in Prain, Fl. trop. Afr. 9: 307 (1918). **Type**: Ethiopia, plants cultivated at Karlsruhe from seed collected by *Schimper* (holo: *n.v.*; iso: K!(photo BRI)).

Andropogon fulvicomus var. *approximatus* Hochst. in Sched., Schimp. iter abyssicum exs. 2: 928 (1842). **Type**: holo: *n.v.*; iso: K(photo BRI).

Specimens examined: Queensland. COOK DISTRICT: Malanda, Jun 1963, *Johnston* [AQ262567] (BRI). NORTH KENNEDY DISTRICT: Near Ingham, Jun 1952, *Everist* 5172 (BRI). **New South Wales.** NORTH COAST: Maitland, *Vane* [NSW67401] (NSW); Newcastle, *McLennan* [NSW183563] (NSW); Raymond Terrace, Mar 1981, *Lloyd* 368 (BRI); Belmont, Jun 1986, *Lloyd* 412 (BRI); ditto, May 1986, *Lloyd* 413, (BRI,CANB); ditto, Jun 1986, *Lloyd* 415 (BRI, PERTH); Doyalson, Jun 1986, *Lloyd* 411 (AD,BRI); Jun 1986, ditto 414 (BRI,NSW); Sandgate, NW of Newcastle, *Story* 7588 (CANB, 3 sheets).

According to the most recent revision of *Hyparrhenia* (Clayton 1969) there are four species in Australia – *H. rufa*, *H. hirta*, *H. quarrei* and *H. filipendula*. The first three are thought to be naturalized exotics, whereas *H. filipendula* has a distribution pattern exhibited by some other Old World andropogonoid species, namely *Themeda triandra* and *Heteropogon contortus*. Clayton (1969) regards *H. rufa* as a very variable species and he lists ten characters with "no obvious discontinuities." Within Australia however, the forms with villous peduncles appear to have a more pallid colour of the spikelet indumentum, as well as a different distribution from the more common form with glabrous peduncles and reddish brown spikelet indumentum. For these reasons taxonomic recognition at subspecific rank seems appropriate to me. The subspecies is allopatric from the typical subspecies (within Australia) and is known to occur in the Newcastle area of New South Wales and in northern coastal Queensland.

Hyparrhenia quarrei Robyns is separated from *H. hirta* by Clayton on the basis of the racemes being deflexed and he cites two specimens from Australia, one from Western Australia and the other from New South Wales. Examination of these specimens has revealed them to fall within the circumscription of *H. hirta* and that raceme deflection is probably a function of age rather than by anything fixed genetically. The type of *H. quarrei* does not show raceme deflection very well anyway, being a young specimen, and supports my view of placing *H. quarrei* in synonymy.

Hyparrhenia hirta (L.) Stapf in Prain, Fl. trop. Afr. 9: 315 (1918). *Andropogon hirtus* L., Sp. Pl.: 1046 (1753). **Type**: Italy, *Burser* I.119 (holo: UPS, *fide* Clayton 1969, *n.v.*).

Hyparrhenia quarrei Robyns, Fl. Agrost. Belge 1:171 (1921), **synon. nov. Type**: Zaire, Kafubu, *P. Quarre* 199 (holo: BR!(photo BRI,K)).
Robyns, Bull. Jard. Bot. Brux. 8: 234 (1930).

ISCHAEMUM L.

Ischaemum albovillosum B. Simon **species nova** affinis *I. fragili* R. Br. sed gluma superna spiculae sessilis acuminata et hirsuta, gluma inferna spiculae sessilis hirsuta, palea inferna absenti differt, et affinis *I. roseotomentoso* Phipps sed pilis albis, gluma

Fig. 3. Holotype of *Ischaemum albovillosum*.

inferna spiculae sessilis sine dente centrali differt. **Typus:** Hamersley Railway line, between Dampier and Mt Tom Price, Western Australia, October 1968, *Campion* s.n. [PERTH 00349925] (holo: PERTH!(photo BRI)). **Fig. 3.**

Habit perennial. Culms to 40 cm tall, densely to loosely tufted, simple; nodes usually bearded. Ligule *ca* 1 mm long (imperceptibly hair-fringed). Blades 5–12 cm long; 2–5 mm wide. Inflorescence single. Racemes 10–12-jointed, 6–8 cm long. Joints shorter than pedicels, with ciliate margins, *ca* 5 mm long. Sessile spikelet dorsally compressed, elliptic, *ca* 10 mm long, *ca* 2 mm wide. Lower glume not rugose, coriaceous, glabrous outside, hairy towards apex inside, erose, 9-nerved, 2-keeled, without wings at apex. Upper glume 5-nerved, *ca* 9 mm long, acuminate, hairy inside and on keel outside, coriaceous. Lower lemma hyaline. Lower palea absent. Upper lemma stipe-like, *ca* 5 mm long, membranous. Awn to 30 mm long. Upper palea absent. Anthers *ca* 1 mm long. Grain *ca* 2.5 mm long. Pedicelled spikelet *ca* 10 mm long, elliptic, developed. Lower glume coriaceous, hirsute with long tubercle-based hairs especially on keels and subapical arch, 15–17-nerved. Upper glume 2/3 as long as lower glume, glabrous, acute, 11-nerved. Lower lemma *ca* 6 mm long. Upper lemma *ca* 5 mm long.

Thus far the new species is only represented by the holotype.

This very distinctive species resembles *I. roseotomentosum* from Zimbabwe in that it has a single raceme, the lower floret of the sessile spikelet is sterile and the corresponding spikelets are about the same size. *I. albovillosum* differs from *I. roseotomentosum* in that the tomentum of the young inflorescence is white and not mauvish pink and the lower glume of the sessile spikelet does not have broad wings with a central tooth at the apex. Both species differ from *I. fragile* in the larger spikelets and the silky tomentum.

Ischaemum tropicum B. Simon, **species nova** affinis *I. polystachyo* Presl sed inflorescentiis racemis duobus vel tribus, culmis erectis differt, et affinis *I. afro* (J. Gmelin) Dandy sed inflorescentiis racemis duobus vel tribus, spiculis parvioribus differt, et affinis *I. timorensi* Kunth sed spiculis grandioribus differt. **Typus:** NW of Katherine, Northern Territory, 26 April 1947, *S.T.Blake* 17475 (holo: BRI!; iso: CANB!,DNA!,K!,L!,MEL!,NSW!). **Fig. 4.**

Habit perennial. Culms 80–120 cm tall, densely to loosely tufted, shortly rhizomatous, simple; nodes hairy. Ligule *ca* 2 mm long (rim of hairs). Leaves glabrous; blades 8–20 cm long, 2–4 mm wide. Inflorescence digitate. Racemes 2 or 3; pedunculate (upper), 8–14-jointed, 4–6 cm long. Peduncles 6–7 mm long; slightly hairy on margins. Joints longer than pedicels, with ciliate margins, *ca* 4.5 mm long, triangular in section, base of joint and pedicel producing a pore. Sessile spikelet triangular in section, elliptic, 5–5.5 mm long, 1.5–2 mm wide. Lower glume elliptic-acute, not rugose, glabrous, chartaceous, bifid (obscurely), 10-nerved, 2-keeled, with wings at apex; wings narrow. Upper glume acuminate (obscurely with awn to 2 mm long), glabrous, coriaceous, 4-nerved. Lower lemma acute, glabrous, *ca* 6 mm long. Lower palea slightly shorter, hyaline. Upper lemma *ca* 5 mm long, hyaline, bifid with linear lobes, bifid for 1/3 of length. Awn 12–16 mm long. Upper palea lanceolate, *ca* 5 mm long. Anthers *ca* 2.5 mm long. Pedicelled spikelet neuter, 2–7 mm long, elliptic, developed or reduced to 1 or 2 glumes. Lower glume glabrous, not rugose below, coriaceous, 11-nerved. Upper glume subequal, acuminate, glabrous, 7-nerved. Lower lemma acute, *ca* 5.5 mm long. Lower palea equal. Upper lemma *ca* 5 mm long; awned. Palea *ca* 5.5 mm long. Anthers *ca* 1 mm long.

Specimens examined: Papua New Guinea. MOROBE DISTRICT: Near Lae, Apr 1975, *Henty* NGF 49749 (A,BRI,CANB,L). **Australia. Northern Territory.** DARWIN AND GULF: George Creek near Robins Falls, S of Adelaide River, *Lazarides* 252 & *Adams* (CANB,DNA,K,L); Robins Falls, Mar 1972, *Passlow* 270 (BRI). **Queensland.** COOK DISTRICT: Moa Peak, Moa Island, Aug 1985, *Budworth* 305 (BRI).

This is a fairly distinctive grass with affinities with the Malesian species *I. polystachyum* Presl and *I. timorense* Kunth and the African species *I. afrum* (J. Gmelin) Dandy in that there is a distinct pore at the junction of the rachis joint and the pedicel. This feature is not present in any other Australian species but is fairly common in species of other regions.

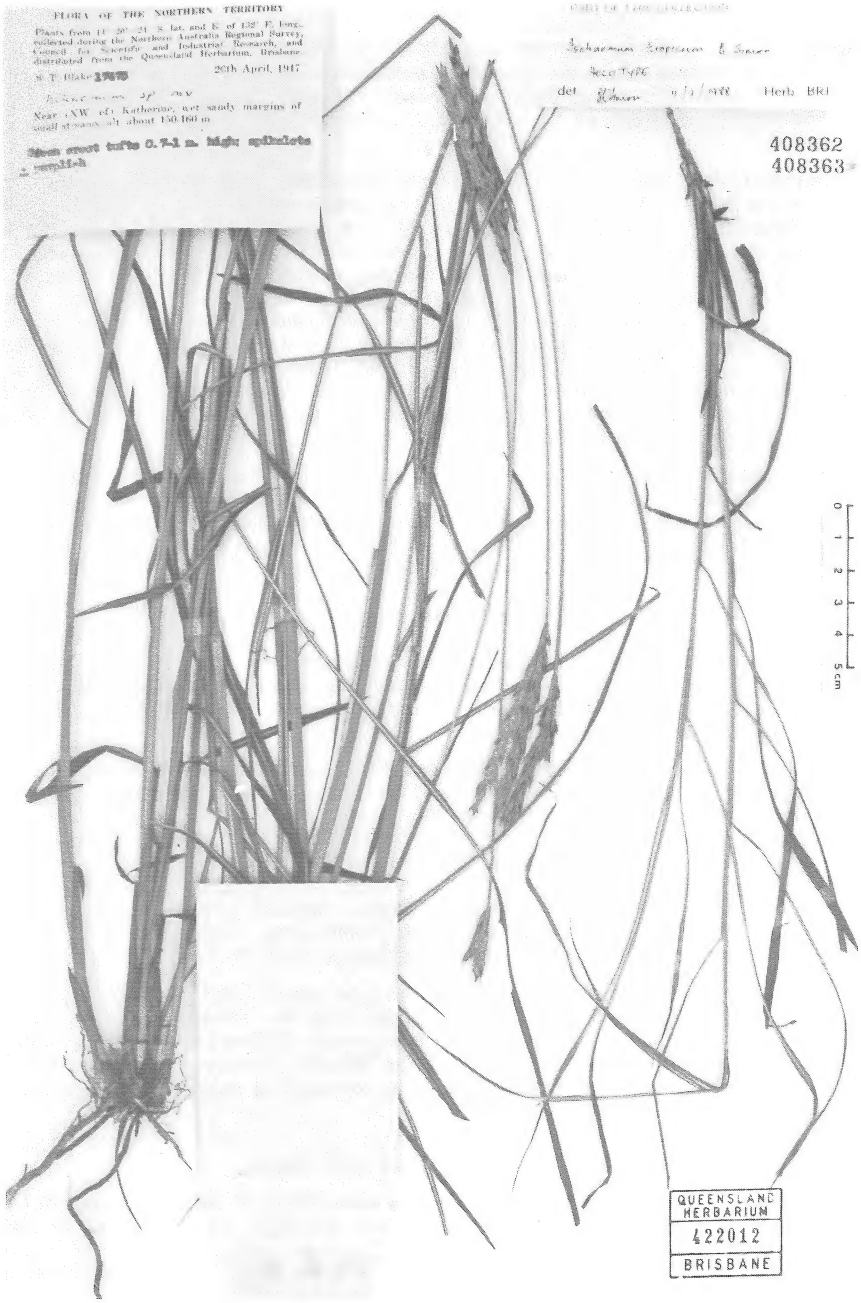

Fig. 4. Holotype of *Ischaemum tropicum*.

MNESITHEA Kunth

Mnesithea pilosa B. Simon, **species nova** affinis *M. formosae* (R. Br.) Koning & Sosef sed sine fimbria ciliata ad apicem articuli rhachidis, spiculis sessilis longioribus, spiculis pedicellis rudimentalissimis differt. **Typus:** Bottom C Paddock, Swans Lagoon, Queensland, 24 March 1983, *P. Chaplain* [AQ349053] (holo: BRI!). **Figs 5 & 6.**

Habit annual. Culms 25–30 cm tall, erect, branched; nodes hairy. Ligule *ca* 1 mm long. Blades 3–6 cm long, 1–3 mm wide. Inflorescence single (rarely with 2 spikelet pairs at a node). Racemes 1, pedunculate, 5–10-jointed, 1–4 cm. Peduncles glabrous, 2–3 mm long. Joints and pedicels the same length (fused to halfway), glabrous, 3–5 mm long; pedicel rigid and 3-nerved. Sessile spikelet dorsally compressed or terete, ovate, 2–3.5 mm long, 1.3–2 mm wide. Lower glume ovate, rounded on back, indurated, pilose, rugose (slightly), 11-nerved (indistinctly), 2-keeled, without wings at apex. Upper glume ± equal to lower glume, ovate, glabrous, membranous, not mucronate, 5-nerved. Lower lemma elliptic-acute, glabrous. Lower palea absent. Upper lemma narrowly elliptic, as long as upper glume, membranous. Upper palea elliptic, slightly shorter than its lemma. Anthers 1 mm long. Pedicelled spikelet neuter, much shorter than sessile spikelet (reduced to a glume fragment 0.5 mm long).

This grass, so far known only by the type, was originally thought to belong to the genus *Thaumastochloa*. However the presence of a rudimentary pedicelled spikelet necessitated it be moved to the genus *Mnesithea*, recently enlarged by the amalgamation of a number of genera of the informal groups *Rottboelliastrae* of Stapf and *Coelorachidastrae* of Clayton (Veldkamp, de Koning & Sosef 1986).

SCHIZACHYRIUM Nees

Schizachyrium mitchelliana B. Simon, **species nova** affinis *S. pachyarthro* C. Gardner sed ligulis longioribus, inflorescentia ramis lateralibus multis differt. **Typus:** Mitchell River Station, Admiralty Gulf, Western Australia, Nov/Dec 1973, *T. Kubicki* 53 (holo: PERTH!). **Fig. 7.**

Ligule *ca* 3 mm long. Spatheoles involute towards tip, glabrous, 1.8–3 cm long, 3–4 mm wide. Peduncles 3–5 mm long. Racemes 1–1.5 cm long. Joints and pedicels ± equal to sessile spikelet; joints diffusely hairy, with hairs longer towards apex, narrowly cuneate with parallel sides, *ca* 0.1 mm wide at base, *ca* 0.5 mm wide at tip. Sessile spikelet dorsally compressed, narrowly ovate to narrowly ovate-oblong, *ca* 4 mm long, *ca* 1 mm wide, 4 times as long as wide. Callus *ca* 0.1 mm long. Lower glume 2-keeled throughout, narrowly winged, flattened, glabrous. Upper glume 1-nerved. Lower lemma as long as to shorter than glumes. Upper lemma awn *ca* 2 mm long. Anthers *ca* 1.5 mm long. Pedicelled spikelet *ca* 2 mm long (reduced to glumes). Awn 10–12 mm long.

This species is thus far known only by the type, which itself is rather fragmentary in that most of the spikelets have broken up and only five inflorescences are present. However, the general form of the inflorescence is so very different from other Australian species of *Schizachyrium* and the locality of the Mitchell Plateau has and is revealing many new taxa of plants. Further collecting in the area is required to collect better material of this species.

THAUMASTOCHLOA C.E. Hubb.

Thaumastochloa heteromorpha B. Simon, **species nova** affinis *T. pubescenti* (Benth.) C.E. Hubb. sed spiculis heteromorphis (laevibus, areolatis vel semiareolatis) differt. **Typus:** Cabbage Tree Creek on road from Laura to Cooktown, Lakefield National Park, Cape York Peninsula, Queensland, 5 May 1987, *Clarkson* 6940 & *B.K. Simon* (holo: BRI!; iso: K!,L!,MBA!,NSW!,PERTH!,QRS!). **Figs 8 & 9.**

Culms 20–55 cm tall, nodes 6–9. Sheaths 0.8–1.5 cm long, pilose. Blades 1.5–8 cm long, 1–2 mm wide, linear, flat to involute, pilose. Peduncle glabrous, 10–20 mm long or 60–85 mm long, erect to recurved, to erect, straight. Spikes heteromorphous, with spikelets alternating in 2 rows or ± in 1 row, cylindrical to constricted, 1–2 cm long, 1–1.5 mm wide, or *ca* 0.5 mm wide, 5- or 6-jointed, or 2- or 3-jointed. Joints 3–4 mm long; articulation straight or oblique. Spikelets 2.5–3 mm long. Lower glume triangular-

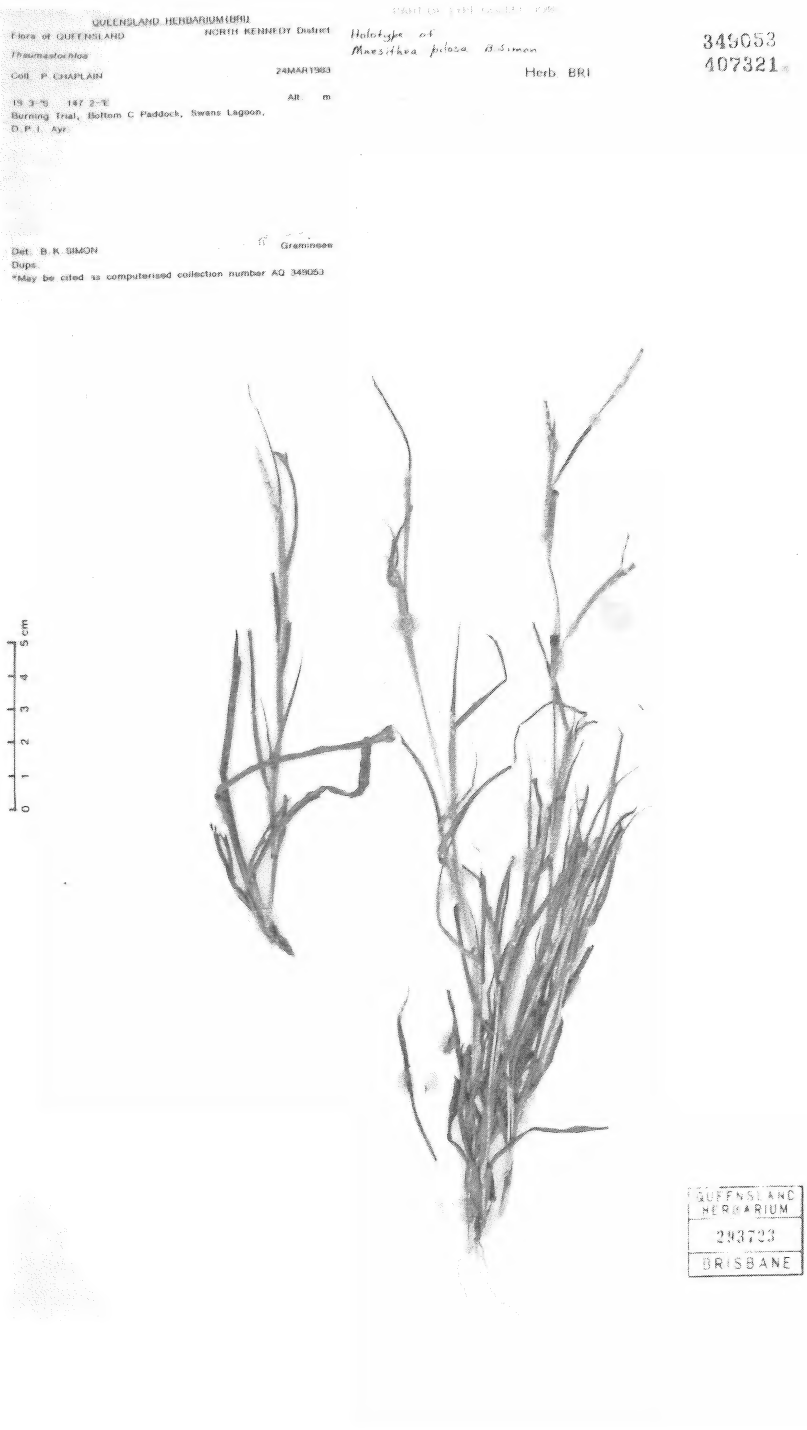

Fig. 5. Holotype of *Mnesithea pilosa*.

oblong, convex (slightly), rugulose or smooth, 5–7-nerved (obscurely). Upper lemma 2-nerved.

Specimens examined: Queensland. COOK DISTRICT: 19 ml E of Mt Garnet, May 1967, *D.E. Symon* 4883 (AD,BRI,CANB); N of Chillagoe, Apr 1938, *Blake* 13604 (BRI,CANB); track to Koolburra, Apr 1980, *Clarkson* 3146 (BRI,CANB,MBA); 40 ml NW of Mungana, Apr 1938, *Blake* 13738 (BRI); Fairview to Kimba road, Apr 1980, *Clarkson* 3176 (BRI,CANB,K,MBA,NSW,QRS); Jardine River, *Brass* 18880, in part (CANB).

On the basis of this species possessing heteromorphic spikelets (with the lower glumes smooth or areolate), it was postulated to be a possible hybrid between *Thaumastochloa major* S.T. Blake and *T. pubescens* (Benth.) C.E. Hubb., or an infraspecific taxon (?of one of these species) or a distinct species (de Koning, Sosef & Veldkamp 1983). Some specimens have a greater representation of areolate than smooth spikelets while others do not, suggesting some form of introgression is operating. Some of the spikes with smooth spikelets are only slightly narrower than spikes with areolate spikelets, whereas others are as narrow as the spikes found in the narrow-spike form of *T. major*. Some specimens (for example the holotype) have spikes in which some spikelets are areolate and others are smooth and yet others have only weakly areolate spikelets. Despite the indication that this taxon shows evidence of being an intergrade between *T. pubescens* and *T. major* it is nevertheless a recognisable entity which should be given a name until experimental evidence is presented as to the nature of the factors resulting in the intermediate spikelet morphology. Another problem is that often two or more species of *Thaumastochloa* may grow together and that unless one is particularly careful it is fairly easy to make a mixed gathering. An example cited in the literature (Hubbard 1936; de Koning, Sosef & Veldkamp 1983) is a specimen collected by F.M. Bailey from Thursday Island in June 1897. The Brisbane specimen consists of a single plant of *T. pubescens* and a number of plants of the thick-spike form of *T. major* in which only the extreme basal part of the spikes is intact. The Kew specimen (not seen) presumably has only spikelet fragments of *T. major* as Hubbard refers to the "lower glume being smooth, and not tuberculate or rugose." Another example of a mixed gathering is *Brass* 18880 (CANB) which has an areolate form of the thick-spike form of *T. major*, a rare character state for this species, and a smooth-spike form of *T. heteromorpha*.

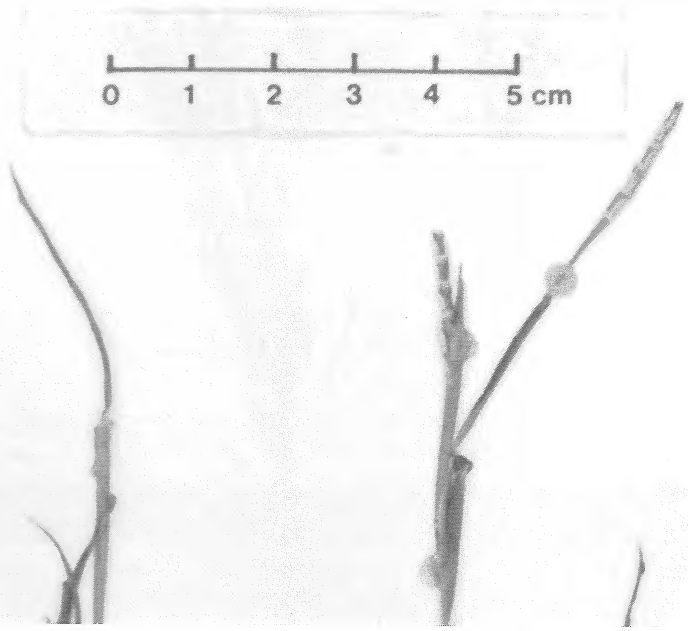

Fig. 6. Two inflorescences of *Mnesithea pilosa* (holotype).

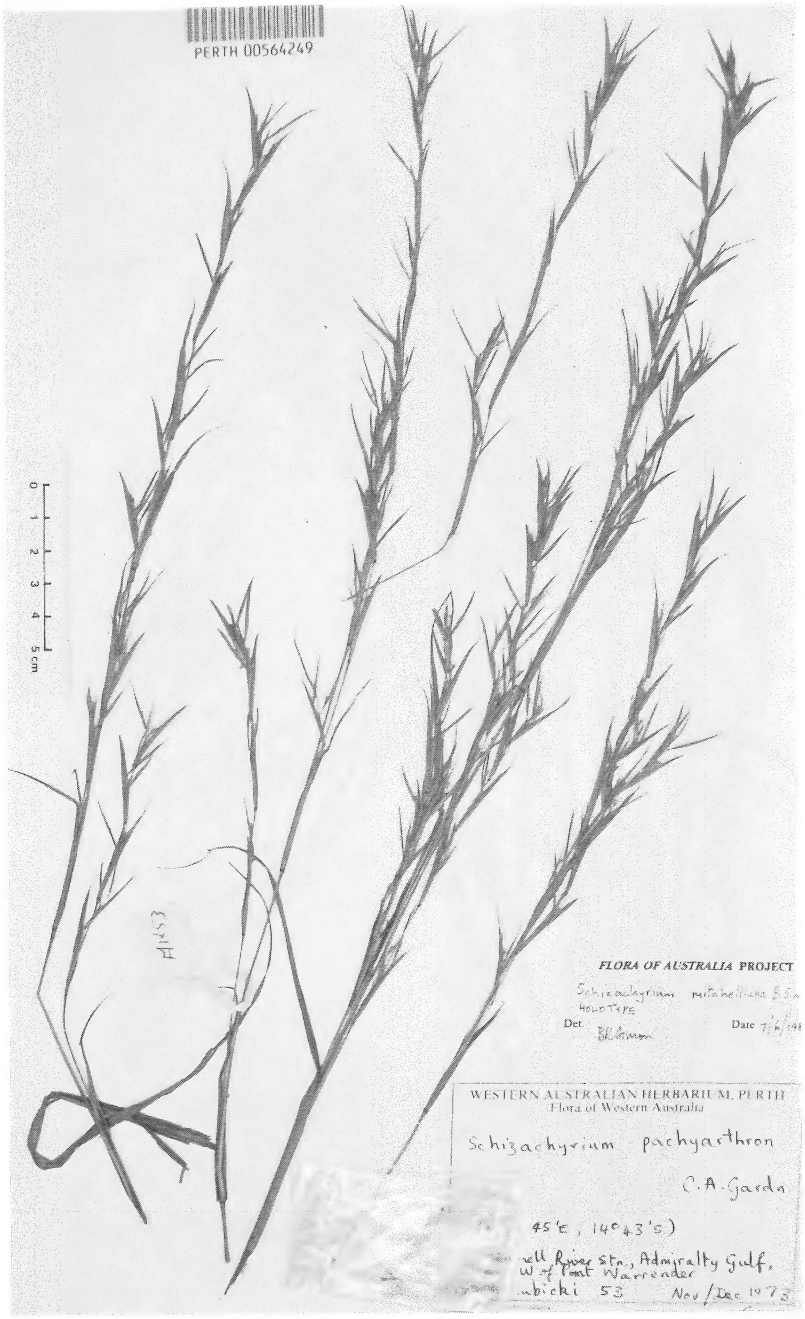

Fig. 7. Holotype of *Schizachyrium mitchelliana.*

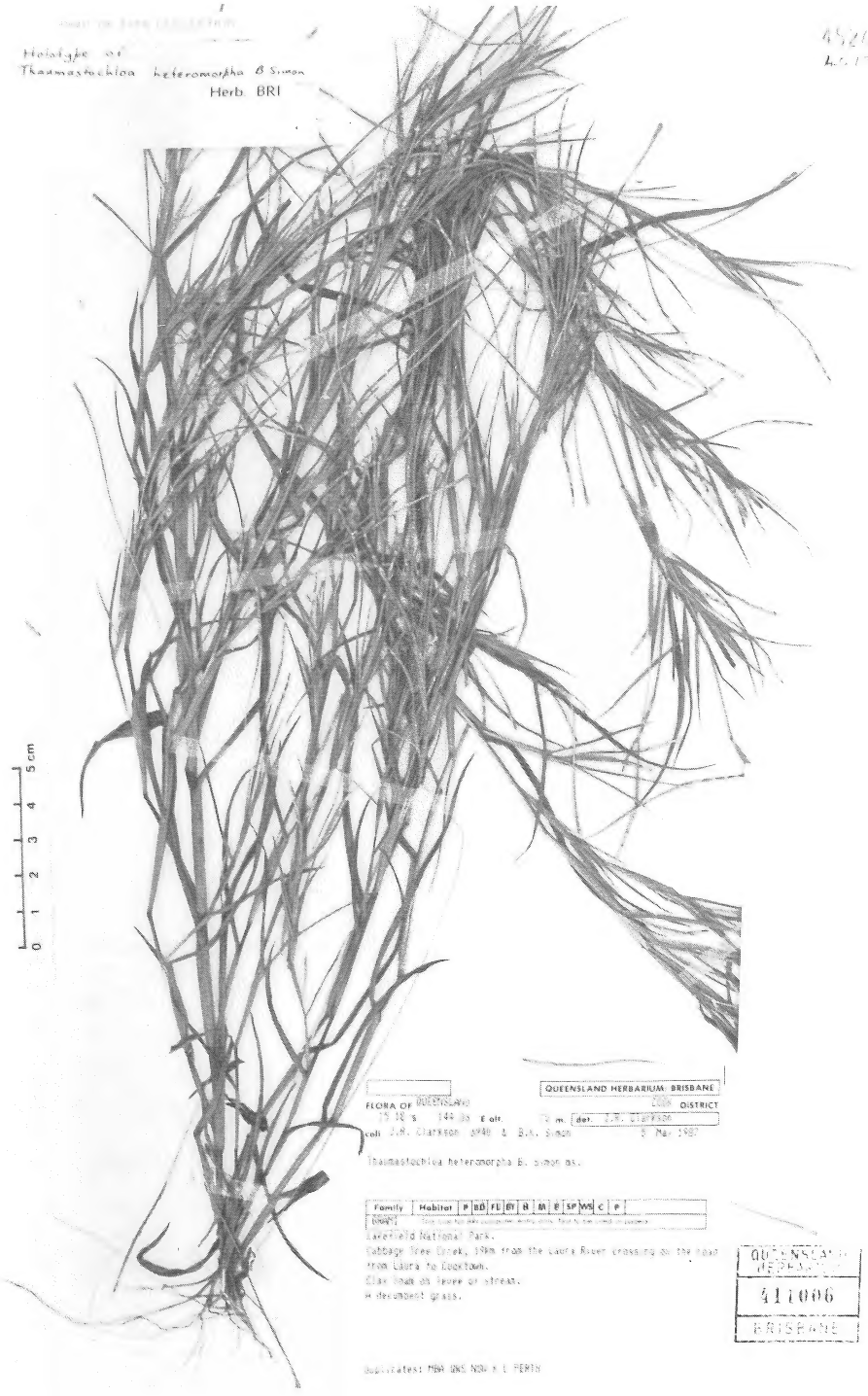

Fig. 8. Holotype of *Thaumastochloa heteromorpha.*

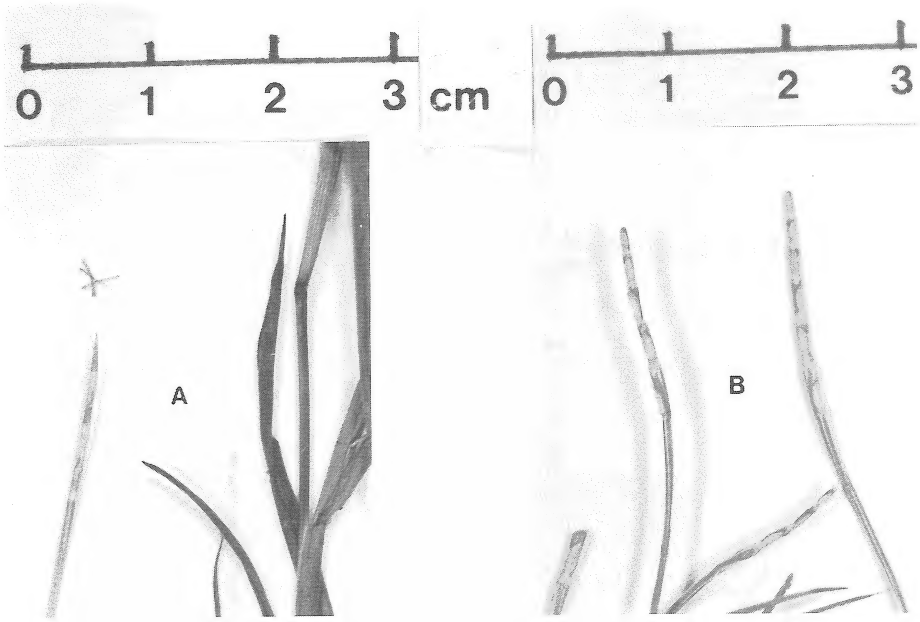

Fig. 9. Inflorescence of spikelets of *T. heteromorpha*: A. with smooth lower glumes (holotype); B. with areolate lower glumes (holotype).

VETIVERIA Bory

Vetiveria rigida B. Simon, **species nova** affinis *V. filipiti* (Benth.) C.E. Hubb. sed racemis brevioribus eorum articulis crassioribus multo brevioribus differt. **Typus:** Watson River crossing on Merluna–Arukun road, Cape York Peninsula, Queensland, 29 May 1982, *J.R. Clarkson* 4419 (holo: BRI!; iso: CANB!,K!,MBA!,NSW!,QRS!). **Fig. 10.**

Culms densely tufted, 130–150 cm tall, 3- or 4-noded, branched. Blades 30–50 cm long, 3–5 mm wide. Inflorescence 20–27 cm long, 8–10 cm wide, with branches in whorls of 3–5, 0.5–1 cm long. Racemes 3- or 4-jointed, 3–4.5 cm long. Joints 4–11 mm long, twice as long as pedicels, both scaberulous upwards and filiform. Sessile spikelet lanceolate-linear, acute, 6–9 mm long. Lower glume cartilaginous, scaberulous, muricate on nerves, 3-nerved. Upper glume 3-nerved, as long as lower glume, boat-shaped, muricate on keel otherwise smooth. Awn to 2.5 mm long. Lower lemma *ca* 6 mm long, oblanceolate, hyaline. Upper lemma stipe-like, *ca* 2 mm long, bifid. Awn 8–10 mm long. Palea lanceolate, *ca* 2.5 mm long. Grain *ca* 3.5 mm long. Pedicelled spikelet neuter, 4–5 mm long, linear-lanceolate. Lower glume 3-nerved. Upper glume a little shorter. Lower lemma *ca* 3 mm long. Upper lemma *ca* 2 mm long.

Specimen examined: Queensland. Cook District: York Downs on Myall Creek, May 1981, *Morton* 1198 (BRI,MEL) (specimen originally selected as type and annotated as such but superseded by the one selected here).

In a revision of *Vetiveria* (Blake 1944), *V. intermedia* was separated from *V. filipes* and justified by a diagnosis similar to the one above. An examination of the type specimen, however, showed that the specimen could not really be separated from *V. filipes* and the name *V. intermedia* has thus been placed in synonymy with it. In more recent times however a more robust entity with readily discernible thicker and shorter inflorescence branches has been collected on two occasions from Cape York Peninsula and deserves recognition.

Fig. 10. Holotype of *Vetiveria rigida*.

Nomenclatural Changes

As a result of some of my recent revisional work in some genera and study of type material of Andropogoneae from European herbaria during a recent visit to Kew, a few Australian species of this tribe require different names from those by which they were formerly known. It seems a useful exercise to list them here as it may be some time before the formal Flora of Australia account is published.

1. Dimeria chloridiformis (Gaudich.) Schumann & Lauterb., Fl. Schutzgeb. Südsee 165 (1901).

Andropogon chloridiformis Gaudich. in Freyc., Voy. Uranie 412 (1826). **Type**: Guam, *M.C. Gaudichaud* s.n. (holo: P!(photo BRI,K)).

Dimeria ciliata Merr., Philipp. J. Sci. 9: 262 (1914). **Type**: Palawan, Phillippines, *E.D. Merrill* 9320 (holo: *n.v.*; iso: K!(photo BRI)).

Dimeria chloridiformis has previously been kept separate from *D. ciliata* on the basis of the pubescent foliage and rachis, and on having larger spikelets (Reeder 1948). I do not consider the former character adequate for specific dilimitation whereas the reported spikelet size difference was not apparent from examination of the types.

2. Eulalia aurea (Bory) Kunth, Revis. gramin. 1: 359 (1830).

Andropogon aureum Bory, Voy. iles Afrique 1: 367, t. 21 (1804); *Pogonatherum aureum* (Bory) Roberty, Boissiera 9: 391 (1960). **Type**: Reunion, *J.B.G.M. Bory de Saint-Vincent* s.n. (holo: P!(photo BRI,K)).

Saccharum fulvum R. Br., Prodr. 203 (1810); *Erianthus fulvus* (R. Br.) Kunth, Revis. gramin. 1: 160 (1829); *Pollinia fulva* (R. Br.) Benth., Fl. austral. 7: 526 (1878); *Eulalia fulva* (R. Br.) Kuntze, Revis. gen. pl. 2: 775 (1891). **Type**: Island c [Allen Island, Carpentaria, Queensland], *R. Brown* [Iter Australiense 6186] (lecto (here chosen): BM!(photo BRI,K); isolecto: K!(photo BRI)).

Eulalia geniculata Stapf in Prain, Fl. trop. Afr. 9: 101 (1917). **Type**: Zaire, *Homble* 42 (syn: K!); Zimbabwe, *Craster* 18 (syn: K!); *Rogers* 4088 (syn: K!); *Eyles* 1137 (syn: K!).

The African species *Eulalia geniculata* and the Mascarene species *E. aurea* were formerly regarded as separate from each other and from the Australian *E. fulva*. They were first placed together by Clayton and Renvoize (1982), who stated "there is considerable variation in such characters as leaf-width, habit, raceme hairiness, and raceme number, but the spikelet structure, particularly the shape of the lower glume, is constant. A number of loosely defined and intergrading variants may be recognized, but it is an exaggeration of their differences to treat them as separate species." Following an examination of the types I concur with this view and the whole complex is best regarded as one variable Old World species of the same nature as *Hyparrhenia filipendula* and *Themeda triandra*.

3. Mnesithea Kunth

As a result of recent work on the generic limits of *Rottboellia* and its allies (Veldkamp, de Koning & Sosef 1986), I have decided to follow this treatment and place a number of Australian taxa in the genus *Mnesithea*. Although their solution is far from ideal (as they say "clearly the last word has not been said"), it represents an advance on the understanding of the relationships of these taxa and is a compromise solution for the time being. Only when further information from sources other than morphology is available will stability be attained.

The nomenclatural details are as follows:

i) **Mnesithea rottboellioides** (R. Br.) Koning & Sosef, Blumea 31: 291 (1986).

Ischaemum rottboellioides R. Br., Prodr. 205 (1810); *Andropogon rottboellioides* (R. Br.) Steudel, Syn. pl. glumac. 1: 382 (1855); *Rottboellia rottboellioides* (R. Br.) Druce, Bot. Soc. Exch. Club Brit. Isles Rep. 1916: 644 (1917); *Coelorachis rottboellioides* (R. Br.) A. Camus, Ann. Soc. Linn. Lyon 68: 197 (1921). **Type**:

Gulf of Carpentaria, North Coast, *R. Brown* [Iter Australiense 6156] (holo: BM!(photo BRI,K); iso: K!(fragment BRI),MEL!(photo BRI),NSW!(photo BRI)).

Rottboellia ophiuroides var. *commutata* Hackel in DC., Monogr. phan. 6: 304 (1889). **Type**: Etheridge R., Queensland, *F. Mueller* s.n. (holo: W!(fragment & photo BRI, photo K)).

ii) **Mnesithea granularis** (L.) Koning & Sosef, Blumea 31: 295 (1986).

Cenchrus granularis L., Mant. pl. altera 2: 575 (1771); *Manisuris granularis* (L.) L.f., Nov. gram. gen.: 37 (1779); *Hackelochloa granularis* (L.) Kuntze, Revis. gen. pl. 2: 776 (1891); *Rottboellia granularis* (L.) Roberty, Boissiera 9: 79 (1960). **Type**: "India orientalis" (holo: LINN!(LINN 1217.12)).

iii) **Mnesithea annua** (Lazarides) Koning & Sosef, Blumea 31: 295 (1986).

Heteropholis annua Lazarides, Nuytsia 5: 288 (1985). **Type**: Guaging Station, Camp Creek, Mitchell Plateau, Western Australia, *K. Kenneally* 8219 (holo: CANB!; iso: BRI!,DNA,K!(photo BRI),L,PERTH,US), *fide* Lazarides.

iv) **Mnesithea formosa** (R. Br.) Koning & Sosef, Blumea 31: 288 (1986).

Rottboellia formosa R. Br., Prodr. 206 (1810). **Type**: Island ∝ [Mallison Island], *R. Brown* [Iter Australiense 6157] (holo: BM!(photo BRI,K); iso: K!(photo BRI),MEL!(photo BRI),NSW!(photo BRI)).

Rottboellia formosa var. *pilosissima* Domin, Biblioth. Bot. 85: 261 (1915). **Type**: Cloncurry, Queensland, February 1910, *K. Domin* s.n. (?holo: K!(photo BRI, fragment NSW!)).

Rottboellia formosa forma *glabra* Domin, Biblioth. Bot. 85: 261 (1915). **Type**: Castle Hill, Townsville, Queensland, February 1910, *K. Domin* s.n. (?holo: K!(photo BRI, fragment NSW!).

4. Polytrias diversiflora (Steudel) Nash, Torreya 5: 110 (1905).

Andropogon diversiflorus Steudel, Syn. pl. glumac. 1: 370 (Jul 1854). **Type**: Java, *Zollinger* 539 (holo: *n.v.*; iso: P!(photo BRI)).

Andropogon amaurus Buse in Miq., Pl. jungh. 360 (Aug, 1854); *Polytrias amaura* (Buse) Kuntze, Revis. gen. pl. 788 (1891). **Type**: Java, *Miquel* (holo: *n.v.*).

Lazarides (1980) takes up the name *Polytrias amaura* for this species, placing *P. diversiflora* in synonymy, but the date of publication of *Andropogon diversiflorus* predates that of *A. amaurus* by one month so the former's specific epithet must be taken up when the transfer to the genus *Polytrias* is made.

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